

Appln. No. 10/643,661

Attorney Docket No. DKT01053

II. Remarks

Claims 1 through 20 are pending in the application. Claims 1 through 14 have been withdrawn. Claims 15 through 22 and 24 have been amended. No new claims have been added.

Accordingly, claim 15 through 25 remain under consideration.

Objections to the Specification

The Examiner objected to the specification as falling to provide proper antecedent basis for the claimed subject matter. The objection and its basis are not fully understood. In fact, a portion of the inconsistency complained of appears to be the product of the Examiner's characterization of the invention rather than the disclosure and terminology appearing in the application. For example, the Examiner asserts that the first rotatable member 182 is splined by spline 184 to the primary output shaft 60. While this general characterization is true, this is not the terminology employed by Applicants' attorney in the specification. Rather, the feature 182 is referred to as a drive collar having internal female splines or gear teeth 184 which engage complementarily configured male splines or gear teeth 186 on the primary output shaft 60. Similarly, the Examiner characterizes the feature 216 as a secondary output member. Reference to the specification in paragraph 31 reveals that the feature 216 is described as an axially extending portion of the chain drive sprocket 160.

Nonetheless, it does appear that the references in, for example, claims 16 and 20 to the primary and secondary outputs were inadvertently reversed. Appropriate amendments have been undertaken in order to achieve consistency of

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reference to these outputs. Accordingly, it is submitted that this basis of objection to the specification has been overcome.

Rejections Under 35 USC § 112

Claim 17 was rejected under 35 U.S.C §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

The Examiner asserts that the limitation in claim 1 regarding 'a permanent magnet' is incongruous with the limitation "a plurality of permanent magnets" which appears in claim 17. The undersigned submits that claims are generally interpreted as reciting a minimal or least complex configuration of the invention, i.e., the patentable invention, and not inconsequentially, an infringing device, may have additional elements but may not have fewer. Thus, properly interpreted, the limitation "a permanent magnet" requires that the invention have at least one permanent magnet but it may have more. Claim 15 is therefore consistent with claim 17. Nonetheless, claim 15 has been amended to recite a plurality of permanent magnets. Independent claim 21, however, which with dependent claim 23 includes similar limitations, has not been amended based upon the arguments presented above. In view of the foregoing claims and revisions and arguments, it is submitted that claim 17, as well as claims 15, 21 and 23, satisfy the requirements of 35 U.S.C. §112, second paragraph, and that the rejection should be withdrawn.

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Rejection Under 35 USC § 102

The Examiner rejected claims 15, 17 through 18, and 20 through 23 under 35 U.S.C. §102(b) as being anticipated by Bird, Jr. et al., United States Patent No. 3,666,064 (Bird, Jr. et al.).

Bird, Jr. et al. teaches a permanent magnet, speed responsive clutch wherein two larger arrays of magnets 82 and 84 provide engaging forces when speed synchronizism is nearly achieved and a smaller array of magnets 104 and 106 provide a spring force tending to separate the larger magnets and one-way engaging teeth to ensure that they do not prematurely engage. Applicants' attorney disagrees with both the characterization of Bird, Jr. et al. and the allegation that it anticipates the above delineated claims. First of all, the clutch configuration is not a positive clutch but rather an overrunning clutch which couples in only one direction and overruns in the opposite direction. Applicants' device is a positive bi-directional clutch. Second of all, and perhaps most importantly, Applicants' device utilizes one or more magnet wheels which do not interact with other magnet wheels, that is, the device does not auto engage by virtue of magnetic attraction between two plates containing magnets but rather utilizes the magnet wheel or wheels with an associated induction member to create drag between the members rotating at distinct speeds which drives the members into synchronizism. Whereas in Bird, Jr. et al., the magnetic devices 82 and 84 engage the clutch, in Applicants' device the clutch is engaged by operation of an actuator translating the shift fork and the clutch collar as the compression spring accommodates tooth butt when substantial synchronism has been achieved by the magnet wheel or wheels and cooperating induction members.

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Such self-engagement by attraction of two magnet wheels of an overrunning clutch in Bird, Jr. et al. is further assisted by additional features which do not exist in Applicants' device. These are the smaller arrangement of magnets 104 and 106 which provide a magnetic spring which, according to the specification, tends to hold elements 82 and 84 out of engagement (column 3, lines 16 and 17). Even if one were to argue that the magnets 104 and 106 find their corresponding elements in the compression spring of Applicants' device, which is a fallacious argument, the fallacy of the argument is positively confirmed when it is appreciated that the magnets of Bird, Jr. et al. oppose clutch engagement, whereas the spring of Applicants' device biases clutch components into engagement.

In summation, it is apparent that Bird, Jr. et al. certainly does not anticipate nor, given the manifest distinctions between Bird, Jr. et al. and Applicants' claimed device, render the claims obvious. Withdrawal of the rejection on Bird, Jr. et al. of claim 15, 17, 18 and 20 through 23 under 35 U.S.C. § 102(b) is respectfully requested.

Rejections Under 35 USC § 103

Claims 16 and 22 were rejected under 35 U.S.C. §103(a) as being unpatentable over Bird, Jr. et al. in view of Baxter, Jr., U.S. Patent No. 5,996,758 (Baxter).

Bird, Jr. et al. has been discussed and distinguished above and that text is hereby incorporated in its entirety by reference. Baxter, Jr. teaches another one way clutch apparatus which is therefore similar to Bird, Jr. et al. but which is intended primarily for application in a transaxle of a front wheel drive vehicle. It is noted, however, in column 3 at lines 6 and 7 that the apparatus may be used in a transfer

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case. The similarities to Applicants' claimed device and the other references, however, end there. Baxter, Jr. discloses an electromagnetically control clutch. Regarding the electromagnetic aspect, it clearly teaches away from Applicants' device and renders its combination with Bird, Jr. et al. highly problematic. For example, which magnetic devices should be used? Permanent magnets or electromagnets? Second of all, while Bird, Jr. et al. teaches a one way or overrunning clutch which is the same as Baxter, Jr., Applicants' device is a positive clutch and the teachings of both Bird, Jr. et al. and Baxter, Jr. thus have reduced relevance. Furthermore, their combination or modification is neither suggested by either of the references nor, if it were undertaken, would it render claims 16 and 22 obvious to one of ordinary skill in the art at the time the invention was made. Claims 16 and 22 are patentable under a proper interpretation of 35 U.S.C. §103(a).

Claim 24 was rejected under 35 U.S.C. §103(a) as being unpatentable over Bird et al. in view of Miller, U.S. Patent No. 3,726,373 (Miller).

Bird, Jr. et al. was discussed above and that text is hereby incorporated in its entirety by reference. Miller teaches a third overrunning clutch which includes multiple magnets which are utilized to facilitate synchronization and engagement. Miller, in fact, is rather similar to Bird, Jr. et al. It therefore manifestly does not cure its defects. For example, Miller, like Bird, Jr. et al. utilizes two sets of magnets 26 and 34 which both attempt to synchronize the rotating members and engage them when near synchronism is achieved. Applicants utilize magnet wheels interacting with induction members. Second of all, both Bird, Jr. et al. and Miller teach one way or overrunning clutches. As noted above, Applicants' device is a positive clutch which couples in both rotational directions. Last of all and interestingly, Miller also includes a biasing device which tends to maintain the clutch faces in separation until

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nearly full synchronization is achieved. In Bird, Jr. et al. this feature takes the form of the magnets 104 and 106 whereas in Miller it is a coil spring 32, but a coil spring which is arranged to provide disengaging bias to the left, as illustrated in Figure 1. See column 3, lines 25 through 27.

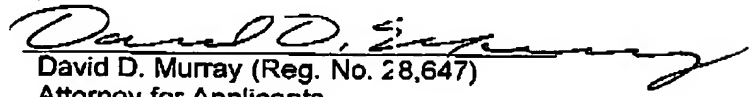
The undersigned acknowledges the Examiner's indication of the allowability of claims 19 and 25, if rewritten into independent form, including all of the limitations of any base claims. At this time, however, and as indicated by the foregoing claim amendments and arguments, it is the undersigned's conviction that Applicants are entitled to broader claim coverage.

SUMMARY

Pending Claims 15 through 25 as amended, are patentable Applicants respectfully request the Examiner grant allowance of these claims. The Examiner is invited to contact the undersigned attorney for the Applicants via telephone if such communication would expedite this application.

Respectfully submitted,

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Date


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